

REMARKS**Regarding the Amendment**

Claims 221 and 232 have been amended. Claims 199 to 201, 220, and 225 have been canceled; most have been replaced with corresponding new claims. In addition, previously withdrawn claims 172–174, 176–189, 202, 204–213, and 236 have been canceled to reduce the number of issues during examination. The Applicant reserves the right to pursue the subject matter of the canceled claims in a future related application.

Dependent claims 239–269 have been added to parallel the claims that depend from Claim 170. Support for the new claims can be found in the previously pending claims, and throughout the specification as filed.

After entry of the amendment above, claims 170, 171, 175, 190–198, 203, 214–219, 221–224, 226–230, 232–235, 237, 238, and new claims 239–269 are under consideration in this application.

Office Action paragraph (a): rejections under § 101 and § 112, second paragraph

Claims 170, 171, 175, 190–201, 203, 214–230, 232–235, 237, and 238 are rejected as allegedly inoperative. The same claims are also rejected as allegedly indefinite. The Office Action states that the claimed methods require a *comparison step* between an unidentified and characterized wild-type enzyme and a mutant enzyme isolated from a mutagenized library prepared from unselected DNA isolated from an environmental sample. However, it is stated that Claim 170 lacks a step to identify and characterize a protein having an activity of interest. Thus, it is allegedly unclear how the comparison can take place.

In response, the Applicant notes that Claim 170, step (a) describes “screening a library . . . to identify the presence of a clone having an activity of interest”. The Applicant submits that identification of a functional activity of interest is inherent in screening step (a). Accordingly, screening step (d) can identify a protein having an improved activity of interest compared to the activity in the clone identified in step (a).

Office Action paragraph (b): rejection under § 112, second paragraph

Claim 220 is rejected as allegedly indefinite and confusing. The Applicant has canceled Claim 220, so the rejection is moot.

Office Action paragraph (c): rejection under § 112, second paragraph

Claim 221 is rejected as allegedly indefinite and confusing. The Office Action states that the act of pooling nucleic acids is a selection process, negating the phrase “obtained without selection” in base Claim 170.

The Applicant has amended Claim 221 to clarify that the method involves performing the steps of (1) isolating organisms from environmental libraries; (2) extracting nucleic acids from the isolated organisms; (3) pooling the extracted nucleic acids; and (4) generating gene libraries from the pooled nucleic acids, all *before* performing step (a). Thus, any apparent conflict of the words “pooling” or “selection” is rendered moot.

Office Action paragraph (d): rejection under § 112, second paragraph

Claim 232 is rejected as allegedly indefinite and confusing. The Office Action suggests deleting the word “molecule”.

The Applicant believes that the word "molecule" was deleted in a previous amendment. Nevertheless, the word has been marked as deleted above.

Office Action paragraph (e): rejections under § 101 and § 112, second paragraph

Claim 238, step (f), is rejected for alleged indefiniteness. Specifically, the Office Action states that the claim does not contain a step to identify and characterize a protein having an activity of interest before the mutagenizing step. Thus, the Office Action alleges that no comparison can take place.

Similar to Claim 170, Claim 238 describes step (d) of "screening the library for a specified activity". The Applicant submits that identification of a functional activity of interest is inherent in screening step (d). Accordingly, step (f) can compare the activity of an expression product of the mutated clone from step (e) with the activity of an expression product of a clone without mutation.

The Applicant requests that the pending rejections be withdrawn, and a Notice of Allowance issue shortly. If any further fees are due, the Commissioner is hereby authorized to charge any underpayment or credit any overpayment to Deposit Account No. 50-0661.

Respectfully submitted,



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